

# Notice of Allowability

Application No.

10/034,097

Examiner

Dana Ross

Applicant(s)

YASUMATSUYA ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed 6 August 2004.
2. ☒ The allowed claim(s) is/are 1 and 3.
3. ☒ The drawings filed on 03 January 2002 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John Kong on October 4, 2004.

The application has been amended as follows:

In the claims:

Claims 2 and 4 are cancelled.

Claim 1 (Amended): A method for controlling a tool changer which comprises a changer arm having a spindle tool holder provided on one end thereof for holding a tool attached to a main spindle and a standby tool holder provided on the opposite end thereof for holding a tool to be next attached to the main spindle for tool change, the method comprising :

preliminarily pivoting both the spindle tool holder and the standby tool holder of the changer arm toward the tool changing position by a predetermined angle to an intermediate position before a tool changing position while the main spindle is moved to the tool changing position;

further pivoting the changer arm from said intermediate position by a residual angle in a direction of said preliminary pivoting so as to move the spindle tool holder of the changer arm to the tool changing position after the main spindle reaches the tool changing position; [and]

causing the spindle tool holder of the changer arm to hold the tool attached to the main

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spindle[.]; and

wherein said preliminary pivoting pivots the changer arm to the intermediate position by a first predetermined angle when the main spindle starts moving towards the tool changing position from a first area, and pivots the changer arm to the intermediate position by a second predetermined angle smaller than the first predetermined angle when the main spindle starts moving towards the tool changing position from a second area different from the first area, the second area being closer to the spindle tool holder than the first area.

Claim 3 (Amended): An apparatus for controlling a tool changer which comprises a changer arm having a spindle tool holder provided on one end thereof for holding a tool attached to a main spindle and a standby tool holder provided on the opposite end thereof for holding a tool to be next attached to the main spindle for tool change and is adapted to pivot the changer arm by a driving system including a servo motor to exchange the tool attached to the main spindle in a tool changing position and the next tool in a predetermined position, the apparatus comprising a drive controlling section for driving the servo motor to perform a changer arm pivoting control process comprising the steps of:

preliminarily pivoting both the spindle tool holder and the standby tool holder of the changer arm toward the tool changing position by a predetermined angle to an intermediate position before a tool changing position while the main spindle is moved to the tool changing position;

further pivoting the changer arm from said intermediate position by a residual angle in a direction of said preliminary pivoting so as to move the spindle tool holder of the changer arm to the tool changing position after the main spindle reaches the tool changing position; [and]

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causing the spindle tool holder of the changer arm to hold the tool attached to the main spindle[.]

wherein said preliminary pivoting pivots the changer arm to the intermediate position by a first predetermined angle when the main spindle starts moving towards the tool changing position from a first area, and pivots the changer arm to the intermediate position by a second predetermined angle smaller than the first predetermined angle when the main spindle starts moving towards the tool changing position from a second area different from the first area, the second area being closer to the spindle tool holder than the first area.

***Allowable Subject Matter***

2. Claims 1 and 3 are allowed.
3. The following is an examiner's statement of reasons for allowance: The prior art of record neither anticipates nor renders obvious a method or apparatus for controlling a tool changer as claimed in independent claims 1 or 3, specifically wherein said preliminary pivoting pivots the changer arm to the intermediate position by a first predetermined angle when the main spindle starts moving towards the tool changing position from a first area, and pivots the changer arm to the intermediate position by a second predetermined angle smaller than the first predetermined angle when the main spindle starts moving towards the tool changing position from a second area different from the first area, the second area being closer to the spindle tool holder than the first area.

There is no prior art of record that anticipates the claimed invention of claims 1 and 3.

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The closest prior art of record is U.S. Pat. No. 4,306,350 (Kielma et al.) in view of U.S. Pat. No. 5,134,767 (Yasuda) as is discussed in detail in the previous office action. Neither Kielma et al., or Yasuda, either alone or in combination with each other, render obvious the preliminary pivoting pivots the changer arm to the intermediate position by a first predetermined angle when the main spindle starts moving towards the tool changing position from a first area, and pivots the changer arm to the intermediate position by a second predetermined angle smaller than the first predetermined angle when the main spindle starts moving towards the tool changing position from a second area different from the first area, the second area being closer to the spindle tool holder than the first area, and no motivation found to modify either Kielma et al. or Yasuda to obtain the claimed invention.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***


4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Ross whose telephone number is 703-305-7764. The examiner can normally be reached on Mon-Thurs 6:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on 703-308-2159. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dmr

  
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